

**Shelly Greaves
Jump Start
Via Cervia 79G
00050 Rome, Italy**

ASPECTS OF TECHNICAL ENGLISH

ABSTRACT

Technical English can be somewhat of a puzzle because of its simplified, concise grammatical structures. This can baffle readers as they attempt to interpret the text; we would first have to determine what our main objective is if we are to resolve the problem. This might seem quite obvious because of the role technicians play in aircraft maintenance, but yet still there are many elements that should be taken into consideration, if we are to achieve our final goal.

In ESL teaching we always recognize the importance of introducing the four basic language skills in any language course: reading, writing, listening and speaking. In this particular case reading prevails over the other skills, to be more precise reading for information characterized by comprehension and application of maintenance manual instructions. This does not mean that reading is the only skill that should be emphasized through out the course, but it most definitely plays a significant role and should be the central point around which the other skills rotate.

GRAMMAR ANALYSIS

If you have basic knowledge of the English language the grammar structures used in Technical English are easily identifiable because of redundancy and

simplicity. In order for technicians to be able to carry out a given task, they must be able to analyze the grammar structure and comprehend the message it is conveying; therefore, a large part of the grammar analysis should focus on the use, as well as, the meaning of these various forms. It is essential that the students' perception be clear, that they can distinguish between a command and a job description, hence forth, obtaining an overall view of the picture. After the reader has acquired a basic idea of how the language works, skimming should be introduced, this technique enables the reader to decide whether or not the text will be of use to him. (See part II, page 2 ex. 2 - Grammar Analysis)

VOCABULARY

Vocabulary – in this type of course vocabulary can be broken down into two major categories: basic technical vocabulary and specific aeronautic terminology. If you take a glimpse of any aeronautic overhaul manual you will notice that certain abbreviations, as well as, certain terms can be found in all of them regardless of the job description. Most definitely this facilitates our task because we can combine basic technical vocabulary and grammar into one course and produce an effective syllabus. If efficacy is our first and most relevant aim, the course syllabus will have to be divided into two parts. The first part of the course will be more generic due to

the fact that it focuses on the basics of ESL teaching; where as, in the second part of the course specific job descriptions should be dealt with more thoroughly.

(See Part II, page 1 ex. 1 Technical Vocabulary)

T.E. learning (Technical English)

Language learning can be simple if you have the right tools to do so. Environment plays a very important part in any course of study. The teaching aids in this type of ESL course can vary from a pencil or a screwdriver to a video on aircraft maintenance, thus leaving a

lot of room for imagination and creativity. In any methodology variety enhances the psychological aspect of learning and produces a higher percentage of student participation so, we are at an advantage because we needn't look very far to reach our main objective.

ORIENTATION

Orientation – is essential if we are to create the three-way-bond that is teacher-topic-students. It can be used as a moment to present and clarify the course objective. If the students are at the zero level the orientation should be given in their language. This can be very helpful to students who have very little or even no knowledge of the subject or how it is taught. Each student should be given a hand out with the program; so that, he may formulate his questions based on a guideline. This is an excellent way to clarify before commencement and can be quite reliable because it not only eliminates frustration but also stimulates interest.

ESL instructors may have to deal with situations that are very unknown to them as they attempt to complete the program. Lack of knowledge in the field of Aeronautics may discourage the instructors if they are use to meeting certain standards. One of the ways to overcome this dilemma could be to acknowledge the fact that you may have to rely on the technicians expertise to complete the program effectively. Even with a teacher – training program, the topic is so vast especially, when considering the specific duties entailed for each shop that it may not be enough for the teacher to get through the program properly. A person with either experience in the field or enough knowledge about the subject will be able to complete the second part of the program (Specific Technical English) successfully.

In the first part of the course the students will have an opportunity to get acquainted with the language, learn basic grammar structures that will eventually be implemented in the second part of the course. Part one (Basic Technical English) may be taught by an ESL instructor. While part two should be taught by an aeronautic expert or someone that is knowledgeable enough to carry out the program properly.

The incentives to complete the course may vary from student to student. In the classroom you may encounter two types of students: technicians that already have accumulated basic technical English acquired through occupational empiricism; the other students usually have little or no knowledge concerning the subject.

In all classes you tend to have students that are less responsive and students that

are more responsive, but in this particular case all the technicians know their jobs. They have to learn to identify the steps that lead them to operational task-completion in English. The language barrier can be quite frustrating for the students because they may feel useless and humiliated. This is why the instructor's psychological approach is of the utmost relevancy. Constructive criticism has to be used properly because it can cause the less knowledgeable students to become discouraged. These students will need more time to get acquainted with the subject matter and gain self-confidence that is why simple correction is more useful than constructive criticism. Basic grammar exercises will assist the instructor and limit them to simple correction without evading the purpose of the exercise.

Initially allowing minimal assistance by those students that are more receptive to the lesser ones can be very advantageous for the students and the instructor. Through pair work you are able to integrate the two types of students and eventually attain 100% classroom participation.

DEVELOPING THE SYLLABUS

What to take into consideration

The students' native language has a lot to do with how quickly he learns English, as well as how he learns it. If the student's native language has Latin origins they tend to find it difficult to understand basic English grammar rules. Many of the problems in interpretation and comprehension can be correlated to the native language. Adjectives seemed to cause confusion because of their position in the sentence. In romance languages the adjective usually follows

the noun; whereas, in English it precedes the noun. Emphasis should be placed on reinforcing this particular part of speech being that it is used quite often in job descriptions, as well as, in instructions for assembly, and disassembly found in overhaul manuals. Being able to identify adjectives, imperatives and adverbs can clarify much of the bewilderment the technicians face as they attempt to read the manuals.

BASIC TECHNICAL ENGLISH

Representation in memory is one of the most important factors in any type of task related procedure. It is characterized by two important elements: what we know about or accumulated quiescent information and how we apply that information. These two aspects of the memorization process define the psychological development of learning strategies associated with operational procedures. All the things we know about constitute declarative knowledge rules, facts, and definitions; the things we know how to do are part of procedural knowledge. Procedural knowledge could not exist without declarative knowledge; this analysis is pertinent to the methodology that will attribute to the efficacy of the syllabus.

Proficiency in operational procedures will depend upon how the student responds to the first part of the course where declarative knowledge prevails. Integration of grammar and basic aeronautic terminology, introduction of simple dialogues, and demonstrations of practical application characterize the foundation for the development of the program.

Basic Technical English should also

include useful phrases that a trainee might need when he goes abroad to take a course, what is called useful language in ESL.(See part II, page 2 Useful Language)

If the student already has some knowledge of how the English language works, the first part of the program will be quite simple for the student to follow. However, without the basics a student may find it difficult to follow the course. This does not mean that it is impossible for the technician to complete the program, but it would facilitate the instructors' task if the students attend a pre-course that lasts approximately 30 hours. The objective of the course would be to get the students acquainted with the subject, "get their feet wet" and then introduce Technical English.

Inadequate testing also influences the students' progress, entrance examination or what is called grading the level in ESL teaching helps to avoid classroom differentiation and simplifies placement. "Testing" becomes fundamental at this point, classes should be divided into various levels and students at the zero level should have an opportunity to take the pre-course. The pre-course can also be used as a brush-up or a quick refreshment for those students that haven't had contact with the English language for some time.

SPECIFIC TECHNICAL ENGLISH

How does one proceed from the rule bound declarative knowledge used in performance of a complex skill to the more automatic procedural stage? Through three main stages: the cognitive stage, associative stage, and autonomous stage. In the cognitive stage most students learning skills begin, they are

instructed how to do the task, observe an expert performing the task, or attempt to figure it out themselves. This stage involves experimentation on the part of the learner as he attempts to use the information (vocabulary, grammar, and theory) he has acquired through declarative knowledge. With regards to ESL during this stage the student should be taught how grammar is used and how to identify the various parts of speech in correlation with aeronautic procedures.

(See part II, page 4 ex. 3)

"Specific English" analyzes the necessities of the various shops in the technical area and introduces exercises that emphasize the terminology utilized in each particular shop; furthermore, the exercises are based on tasks extracted from the manuals in order to comply with the technicians individual needs.

During the associative stage two main changes occur with respect to the development of proficiency in the skill. Problem areas in the original declarative representation of the stored information are progressively detected and eliminated through grammar exercises, listening comprehension exercises and oral reinforcement. All the information accumulated at this point will be strengthened by means of practice and repetition through dialogues and exercises, enabling students to correct errors and focus on problem areas.

(See Part II, page 4 exercise 3 and 4-Specific Technical English)

HANDS-ON (APPLICATION)

In the autonomous stage the performance becomes increasingly fine-tuned. The execution or performance of the skill becomes virtually automatic and mistakes

that prevent the technicians from achieving the task-completion disappear, their accuracy, as well as, speed improve and they are able to carry out the task effortlessly. Hands - On is the best way to connect all three stages. After the student has learnt the basic grammar and practiced it, can understand and interpret the manual; the next step is to focus on practical application. Simple assemblies and disassembly should be practiced in the shop area; so that, the technicians have the opportunity to convert theory into useful energy.

READING FOR INFORMATION

One of the most important aspects of reading is the way the meaning in the text is organized to convey the message, what we call “discourse”. Another essential aspect of reading is how we use the language, in particular to achieve various purposes – this is called “pragmatics”. The first step is to underline the purpose, after the writer must analyze the steps, organize them effectively in order for the technician to be able to interpret-comprehend-carry out the task. In general students encounter many difficulties when reading in English, this has a lot to do with being able to apply and differentiate “conceptual meaning” that is the meaning a word has on its own and “contextual meaning” the meaning a word has in a given context.

e.g. Conceptual meaning – “switch”
part of speech noun
definition - indicates apparatus
used to control the flow current
Contextual meaning – “switch
box”
part of speech –
adjective defines - describes which

box.

Confusion may occur if the technician does not correlate the exact acceptance to the reading; by hypothesizing he may end-up wasting precious time without even completing the task correctly. Defining and introducing frequently used aeronautic vocabulary in part one of the syllabus will eliminate the obstacles you usually encounter as you get deeper into the program. One of the most effective solution is to use an overhead projector. You can write the text with a permanent pen or print it out on the computer and highlight the various parts of speech in different colors with a non-permanent pen.

Efficiency in Reading the demands of speed and understanding in T.E. have to be balanced with the task-completion process. Time is such an important issue in aircraft maintenance; so it is essential that the technicians are able to skim the text and decide what information is useful to them and then scan it to understand the operational procedures they need to complete their tasks. Scanning is a skill that must be delivered orally to the students, so that the pace may be forced. Reading for information should be incorporated and practiced in the second part of the syllabus “Specific Technical English”. Exercises are very easy to devise because they are quite similar to the grammar exercises used in the first part of the program “Basic Technical English”. Initially, the exercises should be delivered without suggesting a time limit, but eventually the goal should be to time the students as they complete the reading exercise autonomously.

LEARNING ENHANCEMENT TOOLS

Teaching aids can be divided up into two major groups structural tools enhancement tools and functional enhancement tools. Structural enhancement tools create versatility in the classroom because of their special features, equipment such as video recorders, tape recorders or overhead projectors are examples of these tools that can be used for the same purpose in any course of study.

We can differentiate functional enhancement tools from that of structural because of the specific features these tools have and from the mere fact that they are created to meet the needs of the instructors and the students. These tools have special purposes for example audio cassettes that use simple dialogues in listening comprehension exercises to focus on skills that define the subject matter and assist in reaching the final objective.

FINAL TESTING

Testing - it is very important not only to the instructor but also to the students because it is the moment in which we can see improvement, verify the validity of the course contents based on the outcome and eventually implement modification if called for. The examination should include oral, written, listening and reading exercises that rotate around the topic; extracts from the manuals should be the basis for testing.

CONCLUSION

Empiricism is the foundation on which this course analysis has been developed. The fundamentals mentioned, have been researched thoroughly and will assist us

as we develop the syllabus. It is essential that we create a balance between the two subjects (Aircraft Maintenance and ESL teaching) if we are to accomplish our goal, accurate task-completion. Technical English and Aircraft Maintenance experience are the two elements that will assure quality work; therefore, these two factors must be integrated through theory and practical application to facilitate the technicians as they accumulate information during their course of study.

REFERENCES

O'Malley J. Michael and Uhl Chamot Anna.1990. Learning Strategies in Second Language Acquisition. USA: Cambridge

Wilson, J.E. 1988. Implications of Learning Strategy Research and Training. New York: Academic Press